

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

LISTING OF CLAIMS

Claim 1 (Currently Amended): A method of monitoring the location of a mining vehicle in a mine, the method comprising:

determining data on the location of at least one mining vehicle in the mine by at least one measuring device provided in the mining vehicle;

transmitting the location data to a mine control system;

employing the obtained location data in the mine control system for monitoring the operation of the mining vehicle;

providing at least one first section and at least one second section in the mine;

providing at least one wireless data communication network for the first mine section which communicates with the mine control system and includes at least one signal transmitting base station for establishing a data communication connection between the mining vehicle and the wireless data communication network, the mining vehicle being in the coverage area of at least one base station in the first mine section;

arranging at least one base station in the second mine section solely for establishing a data communication connection between the mining vehicle and the wireless data

communication network in the first mine section, wherein the at least one base station in the second mine section does not determine the location of the mining vehicle;

continuously determining the location of the mining vehicle as the mining vehicle moves in the first mine section by means of positioning performed in the wireless data communication network on the basis of the location of the at least one signal transmitting ~~at least one~~ base station in the first mine section;

and determining the location of the mining vehicle in the second mine section only by the at least one measuring device provided in the mining vehicle and transmitting the location data to the mine control system over the wireless data communication network of the first mine section.

Claim 2 (Previously Presented): A method according to claim 1, comprising:

determining the location of the mining vehicle in the second mine section by calculating the distance traveled and determining the direction of travel.

Claim 3 (Previously Presented): A method according to claim 1, comprising:

monitoring the location of a manned mining vehicle in the mine,
and transmitting instructions to the operator of the mining vehicle on the basis of the monitoring carried out.

Claim 4 (Previously Presented): A method according to claim 1, comprising:

forming the first mine section in a connecting tunnel,
and forming the second mine section in a production tunnel.

5. (Previously Presented): A method according to claim 1, comprising:

determining the location of the mining vehicle continuously by at least one measuring device provided in the mining vehicle,

comparing the location determined by the measuring device with the location determined by the wireless network when in the first mine section,

and updating the location of the mining vehicle to correspond to the location determined by the wireless network.

Claim 6 (Previously Presented): A method according to claim 1, comprising:

placing additional base stations belonging to the wireless network in predetermined critical locations in the mine,

and registering the visits of the mining vehicle to the coverage area of the additional base stations in the mine control system.

Claim 7 (Currently Amended): A system for monitoring the location of a mining vehicle in a mine, the system comprising:

means for determining the location of the mining vehicle;

a mine control system;

at least one control unit arranged in the mining vehicle;

at least one measuring device arranged in the mining vehicle;

at least one wireless network for data transmission between the control unit of the mining vehicle and the mine control system;

at least one signal transmitting base station for creating a wireless data communication network,

and wherein,

the mine comprises at least one first section provided with at least one wireless data communication network, the mining vehicle being in the coverage area of signal transmitted from at least one base station in the first mine section;

the mine comprises at least one second section provided with at least one base station solely for establishing a data communication connection between the control unit of the mining vehicle and the mine control system, wherein the at least one base station in the second mine section does not determine the location of the mining vehicle;

the location of the mining vehicle as the mining vehicle moves in the first mine section is arranged to be continuously determined using positioning performed in the wireless data communication network on the basis of the location of the at least one signal transmitting ~~at least one~~ base station in the first mine section;

the location of the mining vehicle in the second mine section is arranged to be determined only by the at least one measuring device provided in the mining vehicle,

and wherein location data are arranged to be transmitted in the second mine section over the wireless network of the first mine section from the mining vehicle to the mine control system.

Claim 8 (Previously Presented): A system according to claim 7, wherein
the wireless network is a radio telephone network.

Claim 9 (Previously Presented): A system according to claim 7, wherein
the mining vehicle comprises at least one measuring device for determining the distance
travelled and at least one measuring device for determining the direction of the mining vehicle.

Claim 10 (Previously Presented): A system according to claim 7, wherein
the first mine section is provided with at least one predetermined critical location,
and at least one additional base station is arranged in the immediate vicinity of the critical
location.

Claim 11 (Previously Presented): A system according to claim 7, wherein
the positioning to be performed in the wireless network is arranged to be carried out on
the basis of the location of the base station

Claim 12 (Previously Presented): A method according to claim 1, comprising:
providing the wireless network in the first mine section with a plurality of base stations;
establishing a connection to one base station at time when the mine vehicle is moved in the first
mine section;
creating communication between the mine vehicle and the base station whose signal level
is the highest in the wireless network;
and selecting the location of the base station with which the mining vehicle
communicates at a given time as the location of the mining vehicle.

Claim 13 (Previously Presented) A method according to claim 1, comprising:

providing the wireless network in the first mine section with a plurality of base stations,
which each have a coverage area of transmitted signals;

and calculating the position of the mine vehicle in the coverage area of at least two base
stations on the basis of the level of signals transmitted by the base stations.

Claim 14 (Previously Presented) A method according to claim 1, comprising:

using the monitoring results for keeping a register of the movements of the mine vehicle in
the mine.